Rice University

Environmental Health ENST/SOSC 314

Fall 2010 George R. Brown Hall Room 212W

TR 1:00–2:20 pm; 3 credits

OVERVIEW*

LECTURER

Winifred J. Hamilton, PhD, SM
Assistant Professor, Departments of Medicine and Neurosurgery
Director, Environmental Health Section
Chronic Disease Prevention and Control Research Center
Baylor College of Medicine
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OFFICE HOURS

Thursdays 2:45–4:45 pm (201W GRB) or by appointment (BCM office or TBD)

COURSE DESCRIPTION

The course is designed to provide an overview of environmental health topics, with an emphasis on using epidemiologic tools to help drive policy and other changes to reduce illnesses caused or exacerbated by exposures to environmental health hazards. The class includes guest lectures by area researchers, physicians, citizen advocates and policy makers; a bus tour featuring disproportionately affected neighborhoods as well as cutting-edge "green" initiatives; and student presentations on various environmental health issues of interest. The course also aims to assist students in developing reading, research, presentation and advocacy skills to cogently address different audiences on environmental health topics.

COURSE OBJECTIVES

At the conclusion of this class, students should be able to:

- Discuss basic epidemiologic methods used to study environmental health.
- Define major types and sources of environmental health hazards.
- Define major routes of exposure to environmental health hazards.
- List major diseases and/or symptoms caused or exacerbated by exposure to environmental health hazards.
- Use PubMed, Scopus and other online resources to research environmental health topics.
- Assess peer-reviewed and other environmental health studies critically.
- Use a bibliographic manager to create a topic-specific list of key references.
- Use PowerPoint and presentation skills to communicate effectively on an environmental health topic.

CLASS MATERIALS

Teaching methods will include lectures, discussion, film, student presentations, homework assignments, review sessions, exams, and a bus tour. There is no textbook for this class. All materials will be made available on OWL-Space. For students interested in broader coverage, the following general resources may be useful:

- ATSDR Case Studies: www.atsdr.cdc.gov/csem (Case Studies in Environmental Medicine)
- American Academy of Pediatrics Committee on Environmental Health: *Pediatric Environmental Health*, 2nd ed. American Academy of Pediatrics, 2003. www.aap.org
- *Environmental Health Perspectives* (the official journal of the National Institute of Environmental Health Sciences): ehp03.niehs.nih.gov.
- LaDou J: *Current Occupational & Environmental Medicine*, 4rd ed. Lange Medical Books, 2007.
- Moeller DW: *Environmental Health*, 3rd ed. Harvard University Press, 2005.
- Moore CF: *Silent Scourge: Children, Pollution, and Why Scientists Disagree*. Oxford University Press, 2003.
- Shabecoff P, Shabecoff A: *Poisoned Profits: The Toxic Assault on Our Children*. Random House, 2008.

GRADING

Midterm exam	25 pt
PowerPoint presentation	25 pt
Final exam	25 pt
Attendance, preparation, participation	15 pt
Homework (4)	10 pt
Optional extra credit (on top of final adjusted point total)	3 pt

EXPECTATIONS

ATTENDANCE. Attendance sheets will be collected. If you know that you have a conflict, are sick or for some other reason can't make class, let me know in advance. The door will be closed at 1 pm, after which you'll be late. If you know you will be late, let me know and we'll save a seat for you next to the door so your entrance will be less disruptive. The Houston Community and Environmental Health Bus Tour, which is scheduled for Saturday, October 30, is an integral part of the course and attendance is required.

PARTICIPATION. You are expected to be prepared for each class, as appropriate, and are encouraged to ask questions and interject comments.

CELL PHONES. No texting or cell phone use is allowed once the door is closed. If you must take or respond to a call or text message, let me know in advance of class.

LAPTOP COMPUTERS. Laptop computers are fine but should only be used in class for note taking or other class-related activities.

DISABILITIES. Any person who has a disability that he or she feels may impact his or her work in this class or that he or she feels that I should know about for other reasons should contact me so that we can discuss and make appropriate accommodations. Additionally, one generally should contact Disability Support Services in Allen Center so that an Accommodation Letter can be written.

POTENTIAL TOPICS FOR STUDENT PRESENTATIONS

Your presentation is an opportunity to research a topic of interest, as well as help "complete" the class by covering topics that are timely and important, but that we will not have adequate time to cover within the structural matrix of the class. Below are some suggestions. You will receive separate guidelines and a scoring sheet when the assignment is given.

Diesel Particulate Matter and Cardiovascular Effects
Key Occupational Exposures
Cell Phones and Brain Cancer
Uranium and the Navajo Nation: What Price for Energy and Weapons?
Depleted Uranium and the Health Effects on Soldiers
Environmental Justice Issues in Texas
Urban Noise and Its Effects on Sleep, Productivity, and School Achievement
Fetal Exposures and Adult Obesity
Chlorination Byproducts in Water and Cancer
Fireworks-Related Pollution: What Are the Health Effects?
The Effects of Organophosphate Pesticides on Children's Health
The Potential Long-term Consequences of Hormones in Our Food
Bisphenol A, Phthalates and other Common Endocrine Disruptors: The Health Effects
Do the Benefits of Eating Fish Outweigh the Concentrations of Pesticides, PCBs and Mercury?
The Perils of Perc
Pharmaceuticals, Personal Care Products and Endocrine Disruptors in Our Water
Low-Level Concentrations of Arsenic in Drinking Water
Green Health Care
Health Effects of BP's Horizon Blowout
Living near Heavily Traveled Roadways: What Are the Health Effects?
EPA's "Tools for Schools Program"
Environmental Causes of Obesity
Mold and Asthma
Multiple Sclerosis: Is there an Environmental Connection?
What Are the Health Dimensions of LEED Certification?
Asbestos Is No Longer a Problem…Or Is It?

FALL 2010 ENST/SOSC 314 SYLLABUS: ENVIRONMENTAL HEALTH*

WEEK 1: **Tuesday, August 24:** — **OVERVIEW & BASIC PRINCIPLES**
Syllabus; Grading; Introduction to Environmental Health [Hamilton]

Thursday, August 26:
Environmental Epidemiology [Hamilton]

WEEK 2: **Tuesday, August 31:**
Environmental Health Research Methods [Hamilton]

Thursday, September 2:
Critical Reading of Environmental Health Literature [Hamilton]
PPT FORM DUE

WEEK 3: **Tuesday, September 7:**
Presentation Guidelines and the Literature Search [Hamilton]

Thursday, September 9:
Translational Research: Data Driving Change [Hamilton]

WEEK 4: **Tuesday, September 14:** *Houston at 200: Healthy, Happy, Prosperous* — **TRANSLATION: DRIVING CHANGE**
GUEST LECTURER: David Crossley; President, Houston Tomorrow

HW-1 DUE: Assessing Source Material: Critical Reading [example: Flame Retardants]

Thursday, September 16: *Governmental Policies and Regulations: Environmental Science and the Law*
GUEST LECTURER: Paulette Wolfson, MS, JD

WEEK 5: **Tuesday, September 21:** *Citizen Activists Driving Change*
GUEST LECTURER: Hilton Kelley; CEO, Community In-power and Development Assoc, Port Arthur

Thursday, September 23: *Tobacco—From Public Policy to Medical Care* [assigned readings]
GUEST LECTURER: Harold Farber, MD; TCH/BCM

WEEK 6: **Tuesday, September 28:** *The Special Vulnerability of Children* — **KEY EXPOSURES & DIFFERENTIAL VULNERABILITY**
GUEST LECTURER: Martin I. Lorin, MD; TCH/BCM

Thursday, September 30:
Outdoor and Indoor Air Pollution [Hamilton]

WEEK 7: **Tuesday, October 5:**
Soil and Water Pollution [Hamilton]

HW-2 DUE: Online Databases

Thursday, October 7: *Gene-Environment Interaction & Epigenetics*
GUEST LECTURER: Robert A. Waterland, PhD; Children's Nutrition Res Ctr, TCH/BCM

PPT OUTLINE DUE

WEEK 8: **Tuesday, October 12**
MIDTERM RECESS (NO CLASS)

Thursday, October 14:
Documentary Film: "The Creek Runs Red" [Hamilton]

Sunday, October 17, 6:00 pm–8:00 pm
OPTIONAL MIDTERM EXAM REVIEW (RSC 2nd Fl Conference Room)

48-hour window: Wed Oct 20 (6 pm) through Fri Oct 22 (6 pm)
OWL-Space ONLINE MIDTERM EXAM

WEEK 9: **Tuesday, October 19:** *Exposure to Air Toxics in the Houston Area – RIOPA and HEATS*
GUEST LECTURER: Thomas Stock, PhD, MPH; UTSPH

Thursday, October 21:
NO CLASS (midterm exam in progress)

WEEK 10: **Tuesday, October 26:** *Allergic and Inflammatory Effects* — **HEALTH EFFECTS**
GUEST LECTURER: Stuart L. Abramson, MD, PhD; TCH/BCM

Thursday, October 28:
Sunil Bellur: Green Health Care
Annie Hsiao: Mosquitoes
Kimberly Stanford: Adverse Effects Surrounding the Use and Disposal of Household Cleaners

Saturday, October 30, 9:00 am–1:00 pm:
HOUSTON COMMUNITY & ENVIRONMENTAL HEALTH BUS TOUR

WEEK 11: **Tuesday, November 2:** *Health Effects Associated with Particulate Matter*
GUEST LECTURER: William "Brett" Perkison, MD; BCM and Shell

Thursday, November 4:
Josue J. Lopez: Organophosphate Pesticide Exposure and Neurodevelopment
Sean Mulvehill: The True Cost of Smoking
Vanessa Salinas: The Depleted Uranium Double-edged Sword

Sunday, November 7 (noon): HW-3 DUE: Environmental Exposures and Diabetes Type 2

WEEK 12: **Tuesday, November 9:** *Cancer & Environmental Exposures*
GUEST LECTURER: Melissa L. Bondy, PhD; MDACC

Thursday, November 11:
Cristina Barrera: Fishing for Answers: Do the Nutritional Benefits of Fish Outweigh the Health Risks of Mercury Bioaccumulation?
Connor Frizzelle: EPA's Indoor Air Quality Tools for School Program
Qing Lina Hu: Can Cell Phone Use Lead to Brain Cancer?

WEEK 13: **Tuesday, November 16:** *Neurodegenerative Disease & Environmental Exposures*
GUEST LECTURER: Winifred J. Hamilton, PhD, SM

Thursday, November 18:
Lauren Baba: Lupus & the Environment: Factors Affecting Autoimmune Disease Cases
Mitchel Norton: Environmental Factors and Amyotrophic Lateral Sclerosis (ALS)
Martin Uwah: Urban Noise and Its Effects on Sleep, Productivity, and School Achievement

WEEK 14: **Tuesday, November 23:**
Eleni Balakrishnan: In the Womb: Building the Foundations for a Lifetime
Addie Quinn: The Potential Consequences of Hormones in Our Food
Hope Ward: Asthma: With a Focus on Houston, TX

Thursday, November 25:
THANKSGIVING RECESS (NO CLASS)

WEEK 15: **Tuesday, November 30:** *Healthy Homes, Healthy Neighborhoods* — **COMPLEX HOLISTIC ENVIRONMENTS**
GUEST LECTURER: Brenda Reyes, MD, MPH; HDHHS

HW-4 DUE: Air Pollution and Cardiovascular Disease
EXAM QUESTIONS DUE

Thursday, December 2: *Climate Change & Health*
GUEST LECTURER: Brian Yeoman, Clinton Climate Initiative

WEEK 16: **Sunday, December 5, 4:00–6:00 pm:** — **REVIEW & FINAL EXAM**
OPTIONAL FINAL EXAM REVIEW (RSC 2nd Fl Conference Room)

168-hour window: Wed Dec 8 (noon) through Wed Dec 15 (noon):
OWL-Space ONLINE FINAL EXAM

*NOTE: This overview and syllabus is "a work in progress" and will continue to evolve throughout the course as students choose their topics, speakers and timeslots are confirmed and presentations are refined. The most recently revised syllabus will be posted on OWL-Space. Please check regularly.